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31 Aug 1979, per document marking, DoDD 5200.10; AGO D/A ltr, 29 Apr 1980	

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# **SECURITY**

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AD391838

⑥ Lessons Learned

DEPARTMENT OF THE ARMY  
HEADQUARTERS, 35TH ENGINEER GROUP (CONSTRUCTION) (u)  
APO 96312

ECA-3

⑪ 12 August 1967

SUBJECT: ⑨ Operational Report - Lessons Learned (RCS CSFOR-65) for  
for Quarterly Period Ending 31 July 1967.

THRU: Commanding General  
18th Engineer Brigade  
APO 96377

18 OACSFOR

THRU: Commanding General  
U.S. Army Engineer Command Vietnam (Prov)  
ATTN: AVCC-P&O  
APO 96491

19 OT-RD-670818

THRU: Commanding General  
U.S. Army, Vietnam  
ATTN: AVHGC-DH  
APO 96307

THRU: Commander In Chief  
U.S. Army, Pacific  
ATTN: GPOP-OT  
APO 96558

TO: Assistant Chief of Staff for Force Development  
Department of the Army (ACSFOR-DA)  
Washington, D.C. 20310

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AUG 19 1968

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12 August 1967

SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for  
Quarterly Period Ending 31 July 1967

Section 1. Significant Organization Activities

a. Command (U)

During the period of this report, 35th Engineer Group (Construction) was commanded by Colonel Gilbert H. Newman.

b. Personnel, Administration, Morale, Discipline (U)

Morale of personnel in the Group has been high. Welfare of the troops, spiritual and physical, has been an item of command interest and properly administered. Opportunity has been given for chapel attendance, and chaplains maintained an active counselling program. Each Battalion has had an operating dispensary with medical personnel assigned.

c. Intelligence and Counterintelligence (U)

An active intelligence program has been maintained as the Group has engaged in construction in remote and hostile areas. In order to keep key personnel abreast of current situations, contact has been maintained with the Cam Ranh Advisory Team, Team 35, and MACV Advisors located in hostile areas.

d. Plans, Operations, and Training (U)

(1) (C) During the period 1 May 1967 to 31 July 1967, the 35th Engineer Group (Construction) was responsible for all non-divisional construction in an area of responsibility bounded on the east by the South China Sea; on the north by the Song Boi Giarcy (Song Ba) River extending from Tuy Hoa west to the Phu Bon - Phu Yen Provinces boundary, thence southwest to 13°00' parallel, thence along a straight line west to the South Vietnam - Cambodian border; on the west by South Vietnam - Cambodian border; on the south by the III CTZ - II CTZ boundary.

(2) (C) During this period the following units were attached to and under the operational control of the 35th Engineer Group.

<u>UNIT</u>	<u>LOCATION</u>
14th Engineer Battalion (Combat)	Dong Ba Thin
87th Engineer Battalion (Construction)	Cam Ranh Bay
864th Engineer Battalion (Construction)	Cam Ranh Bay
577th Engineer Battalion (Construction)	Tuy Hoa
572nd Engineer Company (IE)	Tuy Hoa
553rd Engineer Company (FB)	Tuy Hoa
497th Engineer Company (PC)	Cam Ranh Bay
569th Engineer Company (TOPO) (OPECON to USAECV(P))	Nha Trang
Asphalt Platoon (-), 102nd Engineer Company (CS)	Cam Ranh Bay
171st Engineer Detachment (WD)	Nha Trang

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<u>UNIT</u>	<u>LOCATION</u>
588th Engineer Detachment (WD)	Ninh Hoa
551st Engineer Detachment (WD)	Dalat
39th Engineer Detachment (HO)	Cam Ranh Bay

(3) (U) The main construction effort was concentrated at Cam Ranh Bay for the development of Cam Ranh Bay Logistics Area, Depot and Port Facilities; at Nha Trang for the Camp McDermott and associated Cantonment Areas; and at Tuy Hoa for the Airfield Complex at Phu Hiep. Additional effort was also expended in Dong Tre, Cung Son, Ninh Hoa, Ban Me Thuot, Dalat, Bao Loc, Phan Thiet, Phan Rang, and Dong Ba Thin. A very large effort was expended on Line of Communication construction of QL #1 from the city of Ba Ngi to Dong Ba Thin.

(4) (U) As assigned Battalions prepare individual reports, this report will include only activities of Headquarters, 35th Engineer Group, and the 497th Engineer Company (PC). The 497th Engineer Company report is attached as Inclosure 1.

(5) (U) Indigenous personnel were hired by the S1 Section to assist in the operation of quarries, prefabrication yards, and general construction effort. An average of 150 daily hire laborers and 575 direct hire laborers were processed, hired, and controlled by the S1 Section.

(6) (U) Thirteen Sunday mornings during this period were spent training Headquarters personnel in subjects required by USARV Regulation 350-1.

e. Logistics (U)

A major logistics effort was required to support the construction efforts at Cung Son, Dong Tre, Bao Loc, and Ban Me Thuot. Supplies were transported overland and by air. Support from the 1st Logistics Command during this period was outstanding.

f. Information (U)

A full time Information Officer was added to the 35th Engineer Group Staff during this period to process news releases pertaining to 35th Engineer Group.

g. Civil Affairs (U)

(1) The 35th Engineer Group supported the My Ca Orphanage with financial support.

(2) Assistance in the form of road construction was rendered to the Vietnamese Village of Ba Ngi.

Section 2, Part 1, Observations (Lessons Learned)

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12 August 1967

SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for  
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## a. Personnel (U)

ITEM: DA policy of mailing records.

DISCUSSION: Increasingly large numbers of personnel continue to arrive at their units of assignment without their military records; this is ultimately a result of DA's recently announced policy of not allowing individuals to hand carry their records. This situation results in extreme hardships for both management personnel and the individuals concerned. Pay, promotions, effective utilization, and many other personnel actions cannot be satisfactorily accomplished for individuals without their records.

OBSERVATION: That DA should revoke its policy of not allowing individuals to hand carry their records.

ITEM: Late receipt of assignment instructions.

DISCUSSION: Late receipt of assignment instructions continues to be a problem area. It is especially troublesome for individuals who must obtain concurrent travel authorization, or ship household goods. The source of the problem is difficult to understand in the case of personnel who have received direct correspondence from DA citing a DA message, weeks, and sometimes months prior to actual receipt of the instructions.

OBSERVATION: Review of control procedures at higher headquarters appears in order for this problem.

ITEM: Forecasting promotion vacancies.

DISCUSSION: Forecasting promotion vacancies presents a problem in that we have no idea what our gains will be since all personnel are assigned to the USARV Transit Detachment.

OBSERVATION: That losing units in CONUS be informed in DA assignment instructions of the ultimate unit of assignment of individuals and that they publish this unit in reassignment instructions. USARV Transit Detachments should make a concerted effort to assign personnel to the unit they are scheduled for by DA instructions.

## b. Intelligence (U)

ITEM: Weather reports.

DISCUSSION: The experience of the Aviation Section shows a need for being able to determine current weather conditions at various inland locations such as Dalat, Bao Loc, and Duc Lap. The existing means of determining the weather leaves much to be desired. The Air Force weather forecast is not necessarily accurate and very often very misleading. On numerous occasions, flights have been attempted to locations only to find upon arrival that the existing weather precludes the accomplishment of the mission. A mission abort

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due to poor weather at the destination puts unnecessary hours on the aircraft and causes personnel to be unnecessarily non-productive. It is now the practice of the Aviation Section, whenever possible, to call by land line the airports and ask the tower operator for the actual existing weather. Unfortunately the procedure is not applicable to many locations where units of the 35th Engineer Group are located.

OBSERVATION: A need exists for better dissemination of weather information.

c. Training and Organization (U)

ITEM: Failures of septic tank leach fields.

DISCUSSION: In the Cam Ranh Bay area the soil is largely a fine sand with very small void spaces. Installation of the leach field system, which accompanies the septic tank, failed to incorporate a percolation test of the soil, resulting in inadequate area for infiltration. This coupled with a lack of bacteria in the soil, resulted in an overloading of the soil and subsequent flooding of the area, producing extremely hazardous sanitary conditions. The design of any leach field should include a percolation test of the soil to insure adequate infiltration area. Installation of leach fields in conjunction with septic tanks should be limited to areas with a population of 75 persons or less when soils with extremely low void content and lack of bacteria are encountered.

OBSERVATION: Large numbers of septic tank leach field failures were caused by lack of consideration of the design factors involved.

ITEM: Properly trained personnel for maintenance and operation of assigned aircraft.

DISCUSSION: Under the existing TO&E, the Aviation Section is authorized 3 UH-1D aircraft. Presently the section is operating and maintaining 2 UH-1D aircraft, 1 OH-1E aircraft and 1 UH-1A aircraft. Because personnel replacements are allocated based on a unit's TO&E, this section has experienced some difficulty training competent mechanics to work on such a variety of aircraft. In addition, the operation of the existing fixed and rotary wing aircraft dictate that at least 2 of 3 authorized aviators be dual rated, i.e. qualified in both fixed and rotary wing aircraft. Fortunately, such is the case at the present time; however, future replacements may not have this qualification. Lack of qualified aviators would necessarily result in loss of valuable missions and decrease the unit's effectiveness.

OBSERVATION: Aviation units such as the 35th Engineer Group Section should be allowed to requisition personnel and equipment based on its assigned aircraft.

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SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for  
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ITEM: Sandbag helipads.

DISCUSSION: It has been observed that many units are constructing helicopter landing pads of sandbags. Often times after continual use these bags become ripped. Continual landings on this type of pad presents a serious danger to the aircraft. As an example a UH-1B at Vung Ro Bay landed on such a pad and loose bags were blown up through the main rotor system. This incident caused damage totaling in excess of \$10,000.

OBSERVATION: Sandbag helipads can cause extensive damage to rotary wing aircraft.

ITEM: Artillery firing information for aircraft.

DISCUSSION: This unit has observed that the artillery advisory system is not completely reliable. The flight following agencies such as Coastal Center are not necessarily aware of all the firing in their sector. In many instances they are particularly ill-advised concerning ROK and ARVN firing. All pilots should endeavor to determine the frequency and call signs of the FAC's in the area that they are flying through. In most instances the FAC's are aware of ROK and ARVN firing and are more than willing to furnish pertinent information.

OBSERVATION: Frequencies and call signs of FAC's should be given all Aviation Sections in order that they can be made aware of artillery firing in their area.

d. Logistics (U)

ITEM: Refrigerator, mechanical, 65 cubic foot, reach-in.

DISCUSSION: Units of this command have been issued two different types of 65 cubic foot refrigerations. These two types are gasoline driven, FSN 4110-930-5461 and electrically driven, FSN 4110-930-5734.

(1) Experience shows that the electrically driven refrigeration units are excellent and experience little or no operational problems in areas where there is a stable power source. That is to say, an electrical source that is either a permanently or semipermanently installed power plant which is manned and operated on a twenty-four hour basis. Difficulty is encountered in forward and/or remote areas where electrical power sources are unstable and unreliable, such as a unit operating their own organic generators. When such power fluctuations occur, the electrically driven refrigerators in the majority of cases become inoperable and require extensive repair. In the interim period, the perishable foods are either lost or expeditious alternate refrigeration source must be acquired if possible.

(2) The gasoline driven refrigeration unit has proven itself reliable and should be employed in areas where electrical power is either unstable or not available. However, some problems have been encountered when this refrigerator is under continuous use. The primary problem is the loosening of the motor mounts subsequently causing excessive vibration to the entire refrigeration unit hence a breakdown of the unit. Frequent maintenance, and checkout of the motor mounts precludes the majority of the gasoline refrigerator breakdowns.

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(3) Techniques have been developed which improve the refrigeration capability of both types of refrigerators. First, construction of a shelter over the units and second, to revet the units with sandbags on both sides and rear. These adaptations eliminate direct sunrays on the refrigerators. Additionally, the sandbag revetments give protection to the units from hostile activities and assist in reducing operational vibration of the refrigerators. When using the sandbags, caution should be exercised to permit proper circulation of air around the exhaust/intake areas on the rear of the refrigerators.

OBSERVATION: Gasoline driven refrigerators should be issued to all incoming units. When their in-country location is established, and if reliable electrical power is available, authority should be granted by regulation to permit a direct exchange of the gasoline driven refrigeration component for the electrically driven component.

ITEM: Requisitions for construction materials.

DISCUSSION: Requisitions for construction materials have, in the past, been submitted for substitute items in lieu of items originally requested because of their availability. This practice made it possible to complete projects without unnecessary delays but it did create one problem. The stockage system in the Army supply is based on past demands for original items or substitute items issued in lieu of. Without a separate system of ordering substitute items, the supply built up a demand for items that were substitute instead of the original item. To prevent the stockage of substitute items a system has been devised after coordination with Cam Ranh Army Depot to capture the demand for only the originally programmed items. This is done through the use of two FSNs on the unit requisition. The FSN of the original item is lined out in red and the available substitute FSN is entered above. This can either be done by the unit before submission, or by the Depot after submission. The stock control section of the depot will, upon receipt of the requisition, prepare release for the substitute item and in turn capture demand for the originally requested item, thus providing data to support stockage of this item. It is hoped that through the use of this program that depot will be able to provide stockage of the necessary items.

OBSERVATION: Appropriate demand can be built up when substitute items are ordered by using any predetermined notation system understood by all.

Section 2, Part 2, Recommendations (U)

a. Recommend all replacements arriving and departing from Vietnam hand carry their personal records with them.

b. Recommend that individuals be informed of their assignment as early as possible to prevent any personal hardship in movement of families and household goods.

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c. Recommend that weather information be made available to Aviation  
Sections to cover all airfields in a designated CTZ.

d. Recommend that all sandbag helipads be replaced with a durable  
material.

1 Incl  
as

*G. H. Newman*

G. H. NEWMAN  
Colonel, CE  
Commanding

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AVEC-C (12 Aug 67)

1st Ind

Lt Hegmann/ckyDBT-163

SUBJECT: Operational Report - Lessons Learned For the Quarterly Period  
Ending 31 July 1967

HEADQUARTERS, 18th Engineer Brigade, APO US Forces 96377

28 AUG 1967

TO: Commanding General, U.S. Army Engineer Command, Vietnam(Prov),  
ATTN: AVCC-P&O, APO US Forces 96491

1. (U) This headquarters has reviewed the report submitted by the 35th Engineer Group and considers it an excellent report of unit activities and accomplishments for the period ending 31 July 1967.

2. (U) This headquarters concurs with the observations and recommendations of the Group Commander with the following additional comments:

a. Section 2, Part 1, paragraph a, Item: DA policy of mailing records. - Strongly concur in the recommendation that DA should revoke its policy of not allowing an individual to hand carry records. The hardships described are multiplied when many individuals are diverted from original DA assignments, and the records end up in a unit different from the one to which the individual is assigned.

Item: Late receipt of assignment instructions. - This problem has improved somewhat, however it has still not been eliminated. Continued emphasis at all levels is still required to insure all individuals receive assignment instructions in a timely manner.

Item: Forecasting promotion vacancies. - This item is one problem which requires review at DA level, and should be seriously considered along with a comprehensive review of the EM promotion system.

b. Section 2, Part 1, paragraph c, Item: Failures of septic tank leach fields. - A percolation test of the soil should be conducted before the design of the leach field is undertaken. Before limiting the use of septic tanks with leach fields to those areas with a population of 75 persons or less, when the land has a low void content, consideration should be given to the use of sub-surface filters.

*Harold J. St. Clair*  
HAROLD J. ST. CLAIR  
Colonel, CE  
Commanding

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AVCC-P&O (12 Aug 67) 2nd Ind CPT Whitley/wvo/LBN 4581  
SUBJECT: Operational Report-Lessons Learned for the Period Ending  
31 July 1967 (U)

HEADQUARTERS, UNITED STATES ARMY ENGINEER COMMAND  
VIETNAM (PROV), APO 96491

TO: Commanding General, United States Army Vietnam, ATTN: AVHGC-DH,  
APO 96375

1. (U) This headquarters concurs with the 35th Engineer Group's ORLL report and previous indorsement as written, subject to the following comments:

a. Reference Section 2, Part I, paragraph a, and 1st Indorsement, paragraph 2a.

(1) Item: DA policy of mailing records. Department of the Army has revoked this policy and individual's records are now being hand carried.

(2) Item: Late receipt of assignment instructions. Concur. A request will be made to CG, USARV to forward assignment instructions to major subordinate commanders upon receipt and consolidation at that headquarters.

(3) Item: Forecasting promotion vacancies. Nonconcur. All personnel are assigned to USARV Transient Detachment for further assignment, based on current unit requirements. If a critical position is vacant, USARV will make an assignment to that position. There are too many variables and unknown requirements to accomplish unit to unit assignments. Because of this, direct unit assignments from CONUS to RVN are not made.

b. Reference Section 2, Part 1, paragraph 6. Weather trends are predicted based on reports from weather ground observation stations located throughout the country. More stations would result in more accurate reporting; however, the fluid tactical situation prevents positioning in many areas. The practice of FM radio contact enroute can often determine weather conditions at the destination. At times, this too, is unsatisfactory.

c. Reference Section 2, Part 1, paragraph c, and 1st Indorsement paragraph 2c, Item: Failures of septic tank leach fields: Concur with basic observation. Failures have been compounded by overloading.

d. Reference Section 2, Part 1, paragraph c, Item: Properly trained personnel for maintenance and operation of assigned aircraft: Nonconcur. It is anticipated that by 30 September 1967 Engineer Command aviation posture will be exactly as authorized by TOE. The U6A aircraft in question, although assigned to the 35th Group, will actually be the

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FROM BASIC LETTER

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AVCC-P&O (12 Aug 67)

2nd Ind (CONT) CPT Whitley/wvo/LBN 4581

SUBJECT: Operational Report-Lessons Learned for the Period Ending  
31 July 1967

property of the 937th Group and personnel requisitions will be made against that TOE. The O1-E is unauthorized and turn-in instructions are pending from USARV. Assignments of replacement personnel must be monitored closely by brigade aviation officers to insure compatibility with aircraft.

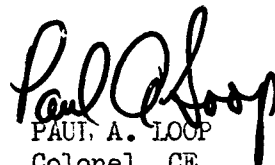
e. Reference Section 2, Part 1, paragraph c, Item: Artillery firing information for aircraft: For security reasons distribution of frequencies and call signs is on a need to know basis. When required, direct coordination should be made between brigade/group signal officers and the appropriate units.

2. (U) The following comments apply to the 497th Engineer Company (PC) ORLL:

a. Reference Section 1, paragraph 4A: Concur. Currently there are similar shortages for bridge erection boats throughout the command with no assets available for issue.

b. Reference Section 2, Part II, paragraph 2: Concur. The 497th Engineer Company (PC) should continue design and evaluation, and submit recommendations.

FOR THE COMMANDER:

  
PAUL A. LOOP  
Colonel, CE  
Chief of Staff

1 Incl  
nc

Info cys furn:

CG, 8th US Army, ATTN: Engr  
CG, 18th Engr Bde  
CO, 35th Engr Gp

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AVHGC-DST (12 Aug 67) 3d Ind  
SUBJECT: Operational Report-Lessons Learned for the Period Ending  
31 July 1967 (RCS CSFOR-65) (U)

HEADQUARTERS, UNITED STATES ARMY VIETNAM, APO San Francisco 96375 2 NOV 1967

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-OT,  
APO 96558

1. (U) This headquarters has reviewed the Operational Report-Lessons Learned for the period ending 31 July 1967 from Headquarters, 35th Engineer Group (Construction) (CWVA) as indorsed.
2. (U) Concur with report as indorsed. Report is considered adequate.

FOR THE COMMANDER:

1 Incl  
nc

*C. S. Nakatsukasa*  
C. S. NAKATSUKASA  
Captain, AGC  
Assistant Adjutant General

cc: HQ, 35th Engr Gp (Const)  
HQ, US Army Engr Comd VN

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GPOP-DT (12 Aug 67) 4th Ind (U)  
SUBJECT: Operational Report for the Quarterly Period Ending 31 July 1967  
from HQ, 35th Engineer Group (Const)(UIC: WCWVAA) (RCS CSFOR-65)

HQ, US ARMY, PACIFIC, APO San Francisco 96558 6 DEC 1967

TO: Assistant Chief of Staff for Force Development, Department of the  
Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding indorse-  
ments and concurs in the report as inclosed.

FOR THE COMMANDER IN CHIEF:



HEAVRIN SNYDER

CPT, AGC

Asst AG

1 Incl  
nc

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CORRESPONDENCE

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REF ID: A67777  
DEPARTMENT OF THE ARMY  
HEADQUARTERS, 497TH ENGINEER COMPANY (PC)  
APO 96312

EGA-PCA

30 July 1967

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly  
Period Ending (30 July 1967)

TO: Commanding Officer  
35th Engr Gp (Const)  
ATTN: EGA-3  
APO 96312

Section 1, Significant Organization and Unit Activities.

1. Command

There has been no change in command since the quarterly period ending 30 April 1967.

2. Intelligence and Counter-Intelligence

None

3. Plans, Operations, and Training.

A. Open Drainage (CD 65-42DC-35)

Work was begun on an open drainage ditch that will drain the 264,000 square foot hardstand area between Piers 3 and 4. The trapezoidal ditch consists of a blast rock side and bottom with concrete on the remaining side. This open type ditch has the advantage of being easily cleaned and repaired. The ditch is 1150 feet long and borders two sides of the hardstand area.

B. Sheetpile Bulkhead (CD 66-182DC-35)

This portion of the Cam Ranh harbor bulkhead extends for 720 feet from Pier One (1) south towards Cam Ranh Village. After 520 feet of the wall was completed it was necessary to stop work and replace the south breasting dolphin on the POI Jetty. On 3 July 1967 work was again resumed on the wall, this time on a single shift basis. The remaining 200 feet of the wall was driven and anchored in three weeks. Four (4) feet of freeboard exist above Mean High Water (MHW). The 22,400 ft-lb single-acting diesel hammer was used to drive the wall to a fifteen (15) foot minimum penetration.

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REF ID: A67777

EGA-PCA

30 July 1967

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly  
Period Ending (30 July 1967) (Cont'd)

C. Repair and Maintenance of Port Facilities (CD 66-200C-35)

(1) Barge Off-Loading Facility

Redecking and replacement of the damaged piles, caps and stringers has been completed. To date 100 percent of the wharf has been replaced at least once with the exception of the timber pile it rests on. Recently the last of the three original timber dolphins on the sea ward side of the facility was torn out. Under this condition it renders that portion of the wharf vulnerable to severe damage. Plans are to replace this dolphin with a sheetpile dolphin similar to those used to replace the first two dolphins that were destroyed.

(2) Mooring System FCI Jetty

Both the north mooring dolphin and the south breasting dolphin were replaced during this reporting period. The mooring dolphin was replaced due to its poor condition, while the breasting dolphin was replaced after it was destroyed by a tanker drifting into it during heavy seas. These dolphins were replaced by mooring and breasting platforms, using circular steel pile. The mooring platform consist of twelve (12) 16" circular steel pipe pile driven to a minimum depth of thirty one (31) feet. The outside six (6) pile are battered to counteract the pulling force of the ship. The breasting platform is composed of sixteen (16) 16" pipe pile with two of the four rows of pile battered to counteract the breasting force of the tanker. In both cases the pile were filled with concrete to increase pile strength. The cap making up the platforms on top are welded steel plate forms containing a two foot layer of reinforced concrete with a mooring cleat bolted in the center. The platforms have proved to be greatly superior to timber pile dolphins.

(3) Submarine Pipeline Phan Rang

On 4 June 1967 the diving section was called to Phan Rang to repair the submarine pipeline. The free end of this pipeline had two sections of four inch sea hose coupled to four sections of eight inch sea hose, which in turn connected to the six inch API pipe. The entire length of four and eight inch sea hose was damaged by a tanker and was replaced by five section of new eight inch sea hose. The line now allows a tanker to discharge more rapidly due to the removal of the four (4) inch sea hose.

D. Tuy Hoa/Vung Ro Bay FCI Line (CD 77-201-06-T-5S)

Work on the submarine portion of the pipeline is in its final stages, with only part of the mooring system to be completed. The facility consists of two eight inch lines, each 1400 feet in length, and four point bouy mooring system capable of handling a "T2" tanker. Three civilian welders were made available to train selected welders from the company in the techniques of welding pipe. Their skill and training contributed greatly to the record speed in which that portion of the project was completed.

E. FCI Pipeline Phan Rang (CD 55-202-06-T-PE)

Construction will commence shortly on one eight inch and one six inch pipeline leading from the beach to the tank farm at the airfield, a distance of approximately eleven miles. The lines are being routed to avoid populated areas. The present six inch line is scheduled for relocation since it runs near or through many Vietnamese villages.

EGA-PCA

30 July 1967

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending (30 July 1967)(Cont'd)

F. "T5" POL Jetty (CD 08-221-06-T-DE)

The new POL Jetty will consist of a 1600 foot jetty with a forty-five (45) foot square work platform plus mooring facilities to handle either a "T5" and "T2" tanker, or two T5 tankers simultaneously. The platform is of a new design, incorporating H-beams and precast concrete planking. The jetty will handle three twelve (12) inch pipelines, two eight (8) inch pipelines, and two six (6) inch pipelines, with future expansion for three additional twelve (12) inch lines. Construction on the jetty will begin the week of 7 August.

G. AB&T Barge Site (CD 48-213-05-T-GS)

A new off-loading pier, 200 feet by 100 feet is under construction around the present facility at Nha Trang. The new pier will allow two barges and an LST to be unloaded at the same time. The LST portion is designed in such a way that it provides a ramp so that cargo can be unloaded from the hold deck and from the top deck simultaneously. When an LST is not using the facility, it will accommodate up to four small barges. Work is presently underway, and a new technique of using a continuous template system is being employed.

4. Logistics

A. TO&E Equipment

Two critical pieces of equipment which are authorized by the TO&E, but have not been replaced are the bridge erection boats. These boats were turned in during August 1966. They are needed for transportation and for moving work and materials barges. The trailer mounted Shop Equipment Woodworking, FSN 3220-270-8630 as a substitute for the Saw Circular, table type, skid mounted, FSN 3220-287-8722, has proved itself to be an invaluable asset to the construction sections.

B. Construction Materials

Moving the Engineer Supply Specialist from the Supply Section to the Operations Section has made a significant improvement in the control of requisitions and procuring of construction material.

Difficulty is being experienced in the acquisition of construction materials for mooring systems, as well as other port construction materials. Some of these items are large anchors, heavy chain, sheetpile, large bolts and circular steel pile. This situation shows all indication of becoming extremely critical within the not too distant future. It is recommended that more emphasis be placed on the early acquisition of these material when a project is first being planned so that they will be on hand when work is ready to begin.

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly  
Period Ending (30 July 1967)(Cont'd)

## Section 2, Part I

### 1. Operations

#### A. Pile Driving Leads

ITEM: Modification of pile driving leads to allow the driving of battered pile with a diesel hammer.

DISCUSSION: Normally a set of pile driving leads will only pivot forwards and backwards, since it is pinned to the top of the crane boom. The new idea is to attach the leads in such a way that they can be pivoted in all four directions. Then by the use of a moon beam and a calibrated bar across the front of the barge it will be possible to drive a pile at any angle up to 45 degrees and in any given direction.

OBSERVATION: This system will allow pile to be driven at any angle and in any direction. This lead modification will be used to drive the "T" Jetty (CD 08-221-06-T-DE), and should reduce construction time considerably.

#### B. Continuous Template System

ITEM: The use of a continuous template system for driving sheet-pile.

DISCUSSION: This system consists of placing a H-beam template system similar to the one discussed in ORLL for Quarterly Period Ending (30 April 1967). Two H-beams are placed in a continuous line the entire length of the wall. This enables continuous setting and driving of sheetpile without having to move the H-beam template every forty to sixty feet.

The system would be most effectively employed if two work barges were used, the first barge setting the template and the sheetpile, while the second barge follows, driving the sheetpile.

OBSERVATION: This would cut construction time considerably, since it would eliminate the necessity of removing the hammer and leads to set sheetpile and move the H-beam template.

## Section 2, Part II, Recommendations

### 1. Personnel

Since the submission of the last ORLL (30 April 1967) personnel whose prior assignment was with the 77th Engineer Company (PC), Fort Belvoir, have been assigned to this company. In general, they have proven extremely valuable due to prior experience with port construction. Recommend that whenever feasible, port construction experienced personnel be assigned to port units in this theater.

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SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly  
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## 2. Operations

Possibly the most disruptive influence in port construction operations is inclement weather. High sea and winds preclude work in all but the most sheltered conditions. An idea or concept that can alleviate this is currently under study in this company. A work barge equipped with "legs" in the manner of a DeLong Barge would provide a stable platform from which work could be accomplished in most weather. The design contemplated by the company would use a pontoon barge, and circular steel pile, with legs approximately forty (40) feet long. Recommend that studies be initiated on the feasibility of providing port units with a work barge incorporating this feature, as well as living accommodations for the work crew. A barge of this type would be extremely versatile, enabling quick response to a number of port construction requirements.

The first port construction seminar held in Vietnam was hosted by the 497th Engineer Company (PC) on 26-27 July 1967. The outcome of this seminar proved it to be a most useful means for the exchange of port construction experience, designs and ideas. Likewise, it brought into clearer perspective the overall port program, and the wide variances of port conditions encountered in Vietnam. It is strongly recommended that this type of seminar be made permanent, occurring on a semi-annual basis and hosted by the various port units.

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